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Conservator, . . . Henry Skinner, M. D.

Respectfully submitted,

JAMES H. RIDINGS,
Recorder.

REPORT OF THE BOTANICAL SECTION.

The Vice-Director of the Botanical Section has to report to the Academy that the affairs of the Section are in a generally prosperous condition.

Our Herbarium, already one of which the Academy is justly proud, has been increased in new species 407 the past year, without including the additions among the lower cryptogams. The excellent progress made in other matters, under the superintendence of the Conservator, Mr. John H. Redfield, is set forth in detail in his annual report to the Section, which is submitted herewith as part of the Section's report.

Meetings have been held regularly every month, except July and August, the average attendance for the whole year being slightly larger than last.

The Section is free from debt, and has a considerable balance in its treasury.

One of the events of the year was the social re-union and entertainment, in the hall of the Academy, of the botanists in attendance on the meeting of the American Association for the Advancement of Science, under the auspices of the Section. The expense was borne by the members of the Section, without any draft on its regular funds, or on the funds of the Local Committee of the Association. It is believed that the result will be useful to the Academy, in making the work of the botanical department better known, reacting in the interest of botany everywhere.

At the meetings of the Section many matters of interest to botanists have been presented, and some, by Professor Gray, Professor Rothrock, and Messrs. Meehan and Scribner, deemed of sufficient general importance to appear in the Proceedings of the Academy.

The officers elected for the ensuing year are :—

<i>Director,</i>	.	.	.	Dr. W. S. W. Ruschenberger.
<i>Vice-Director,</i>	.	.	.	Thomas Meehan.
<i>Recorder,</i>	.	.	.	F. Lamson Scribner.
<i>Cor. Secretary,</i>	}	.	.	Isaac C. Martindale.
<i>Treasurer,</i>		.	.	
<i>Conservator,</i>	.	.	.	John H. Redfield.

Respectfully submitted,

THOMAS MEEHAN,
Vice-Director.

Conservator's Report for 1884.—The Conservator has, during the past year, continued to direct his attention to the care and improvement of the Academy's Herbarium, so far as was compatible with the demands on his time and labor occasioned by receiving, preparing and placing new accessions. With some assistance from Mr. Scribner, certain portions of the North American Herbarium have been mounted, mainly of genera more especially needing this care, such as *Viola*, *Polygala*, *Lupinus*, *Dalea*, *Astragalus*, *Oxytropis*, *Potentilla*, *Eriogonum*, and others. Mr. Burk is now engaged in the work of re-arranging the North American Compositæ after Gray's New Synoptical Flora. In the General Herbarium the provisional alphabetical lists of species have been carried forward as far as Loranthaceæ. These lists, imperfect and defective as they are, will justify the labor expended upon them, by the time saved to every one consulting the Herbarium. It is hoped that this merely preliminary work will soon be completed, and prepare the way for more deliberate and careful elaboration by expert botanists.

During the latter part of the summer our work had to be temporarily suspended by the necessary preparations for receiving the members of the American Association for the Advancement of Science at its September meeting in this city, and the gratification expressed by them on the visits to the Academy's library and herbarium, for the fraternal fellowship extended by our Section, is a source of satisfaction to us all.

The donations of plants during the past year amount to 3183 species, of which 407 are new to our collection. In these donations are included three Centuries of Ellis' North American Fungi, of which a large proportion are probably new to us, and

should be added to the above 407. The North American species received have been 1792, from tropical America were 3, and from the old world 1388. Among the additions may be specified 1057 species, mostly European and North African, from the fine Herbarium of Geo. Curling Joad, presented by Dr. Gray. Though the most of these duplicated species which we already possessed, yet being choice specimens, collected and ticketed by eminent botanists, they greatly add to the value of our working material, while about one-tenth of them were previously unrepresented on our shelves. Our fellow-member, Mr. Canby, who, it will be remembered, was in charge of the Botanical Department of the Northern Transcontinental Survey, during the years 1882 and 1883, in the interest of the Northern Pacific R. R., has contributed a very valuable suite of the collections made by himself, and by Scribner, Brandegee, Tweedy and others under his direction, along the northern border of Western North America, in the Territories of Dakota, Montana and Washington. This series comprehends 851 distinct species of which about 90 were new to us. Our Vice-Director, Mr. Meehan, has also given us the result of his herborizations along the coast of Washington and Alaska Territories, during the summer of 1883, in a collection of 207 species, which, however add only five species to our earlier Alaskan collections received from Kellogg, Harrington, Dall, and others. Other smaller but valuable donations, will be detailed in the Academy's Donation List for 1884.

In large collections, where constant accessions, during a long period of years, have repeatedly duplicated species, there is always a tendency to exaggerated estimates of the number of *species* represented. In regard to the Academy's Herbarium, the estimates have been so vague and so evidently excessive, that the Conservator has been led to undertake an actual enumeration. This apparently simple task is really attended with many difficulties, one of which consists in the varying views of botanists as to the specific validity of forms. In some families this diversity of opinion is so great as to materially affect total results. In such cases, the Conservator has endeavored to follow the authority of the latest leading specialists. Another difficulty arises from the large amount of unworked and unnamed material, which has accumulated since the early days of the Academy, some of it probably duplicating the named species.

The enumeration is not yet complete, but, as it covers about three-fourths of the collection, a tolerably fair estimate may be made of the remainder, on the basis of space occupied. The conclusion is that the phanerogamic species will not exceed 24,000. To these we must add the ferns—1018, by count—and the remaining vascular cryptogams, estimated at 120 species, and we have a total of phanerogams and vascular cryptogams of a little more than 25,000 species. Of the extent of the collection of lower cryptogams, embracing mosses, liverworts, lichens, algæ and fungi, the Conservator is at present unable to give any estimate.

Respectfully submitted,

JOHN H. REDFIELD,
Conservator.

REPORT OF THE MINERALOGICAL AND GEO- LOGICAL SECTION.

The meetings of the Section have been held regularly during the year, but the attendance has not been as large as formerly. There have been, however, satisfactory additions to the collections of minerals and rocks, in part by purchases made with the funds of the Section.

Respectfully submitted,

THEO. D. RAND,
Director.

REPORT OF THE PROFESSOR OF INVERTEBRATE PALEONTOLOGY.

The Professor of Invertebrate Paleontology respectfully reports, that during the year he has delivered a course of lectures on paleontology and physiography, which course, as in previous years, was attended in principal part by teachers from the various schools of the city. A special course of lectures on geology, arranged by request of the Teachers' Institute of Philadelphia, was delivered before the members of that body, with an attendance ranging from one to two hundred. Six field excursions, em-